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ON A NEW SPECIES OF *TRACHYPENAEUS* (CRUSTACEA,
DECAPODA: PENAEIDAE) FROM THE PHILIPPINES,
WITH NOTES ON RELATED SPECIES*

With 2 Tables and 2 Text-figures

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フィリピン産サルエビ属エビの1新種について

表2, 挿図2

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Abstract: *Trachypenaeus villaluzi* a new species of penaeid prawn from the Philippines is described in detail and compared with the related species. The new species is characterized by the following features: Mastigobranchia are present on the 2nd and 3rd pereopods, but absent on the first; anterior plate of thelycum is deeply concave; the lower margin of the distolateral projections of the petasma is concave. It is also suggested that *Trachypenaeus asper* ALCOCK should be considered as a valid species instead of being treated as a synonym of *T. curvirostris* (STIMPSON).

Introduction

While examining a sample of penaeid prawns collected with an otter trawl by M/V "SEAFDEC I" from Tigbauan waters, a species of *Trachypenaeus* without mastigobranchia on the first pereopod but with it on the second and third pereopods was

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discovered. All the 76 specimens of the species found in the haul exhibited this peculiar feature. The species of *Trachypenaeus* described so far fall into two categories: Those with mastigobranchia on the first, second and third pereopods and those with mastigobranchia on the third pereopod along, the first and second being without it. Hence the present specimens are referred to a new species *Trachypenaeus villaluzi* which is described in this paper. The species is named in honour of Dean D.K. VILLALUZ, Chief of the Aquaculture Department of Southeast Asian Fisheries Development Center (SEAFDEC), and the doyen of prawn research in the Philippines.

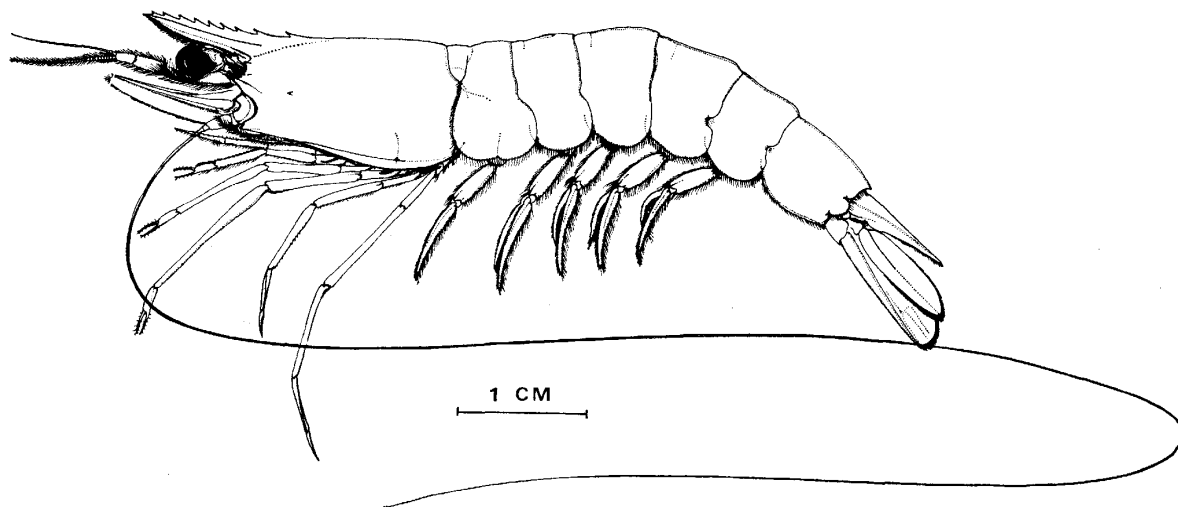
Trachypenaeus villaluzi sp. nov.

Material: Tigbauan, Philippines, Dec. 26, 1978, 7 m, mud bottom. Holotype male 43 mm total length (carapace length 10.6 mm); allotype female, 73 mm T.L. (C.L. 18.3 mm); paratypes 27 males, 37-53 mm T.L. (C.L. 8.3-11.7 mm) and 47 females, 45-68 mm T.L. (C.L. 9.4-16.6 mm). The type specimens are deposited in the biology laboratory of the Aquaculture Department, SEAFDEC, Tigbauan, Philippines.

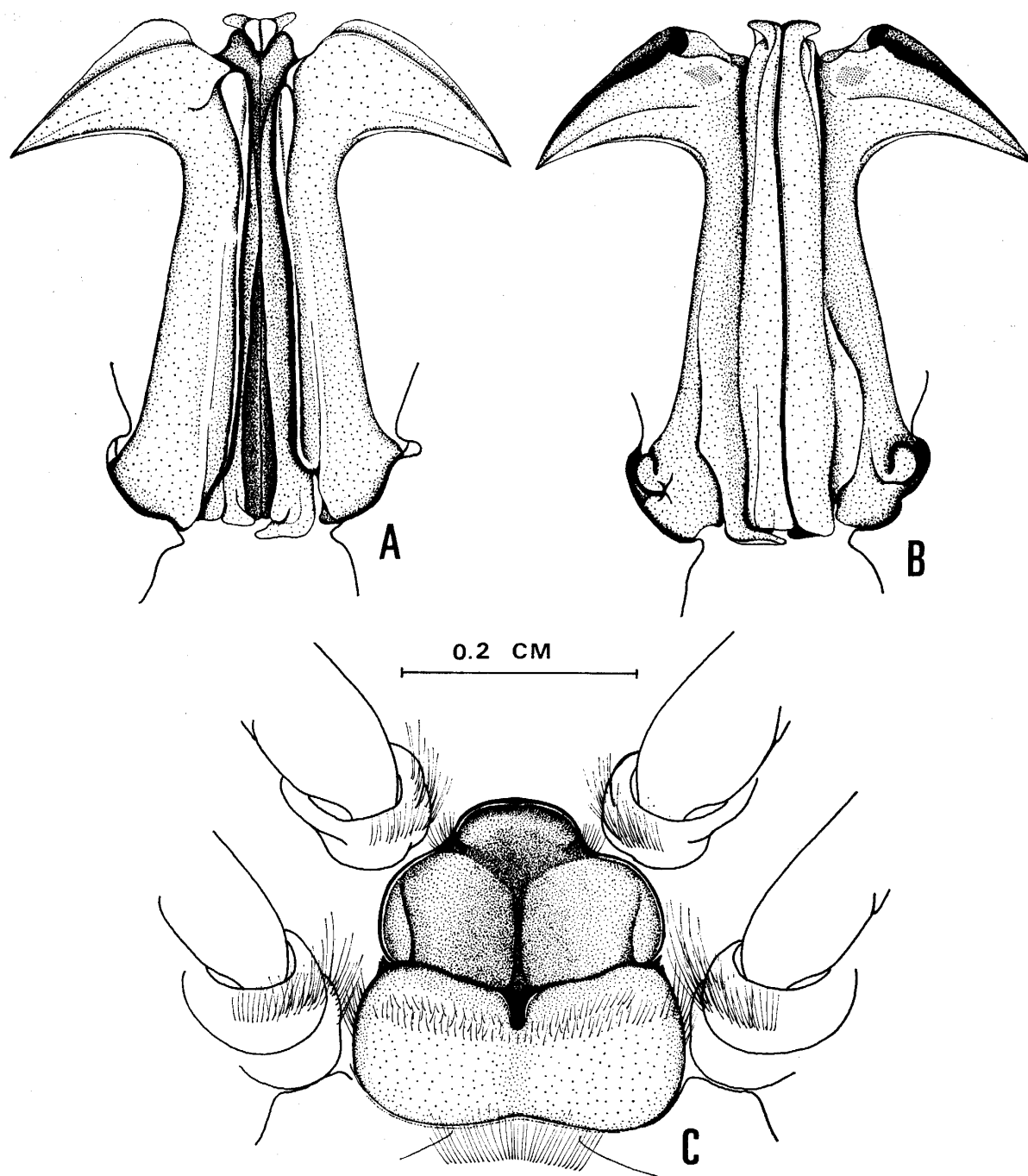
Diagnosis: Mastigobranchia present on second and third pereopods, absent on the first pereopod. Anterior plate of thelycum deeply concave. Lower margin of the distolateral projections of the petasma horizontal.

Description

Carapace and abdomen densely pubescent. Rostrum with 8-10 teeth (usually 9) in addition to the epigastric, reaching $2/3$ - $3/4$ second segment of the antennular peduncle in males and up to $1/2$ distal segment in large females; distinctly upcurved in females and almost straight in males. Postrostral carina which is sharp imme-



Text-fig. 1. Lateral view of female *Trachypenaeus villaluzi* C.L. 14.9 mm.



Text-fig. 2. A and B, ventral and dorsal views of petasma of *Trachypenaeus villaluzi* C.L. 11.3 mm.; C, thelycum of female C.L. 14.9 mm.

diately behind the epigastric tooth extends to posterior 2/3 of carapace in females and 9/10 of carapace in males. Short longitudinal suture confined to shallow orbito-antennal sulcus; short transverse suture at the base of the third pereopod. Hepatic fossa in front of the hepatic spine filled with setae; sub-hepatic sulcus runs obliquely downwards and ends in a shallow depression behind bluntly angular pterygostomian

angle. Supra-orbital angle sharply dentate. Brachio-cardiac and cervical carinae absent.

Antennular penduncle slightly exceeding tip of scaphocerite. Antennular flagella sub-equal, 0.70 mm length of peduncle in females and 0.85 mm in males.

Third maxilliped exceeding carpocerite by $1/2$ propodus; first pereopod slightly exceeding carpocerite; second exceeding carpocerite by $1/4$ carpus; third exceeding scaphocerite by $2/3$ finger, fourth exceeding carpocerite by entire of $3/4$ dactyl; fifth slightly exceeding tip of scaphocerite. Basal spine on first and second pereopods and a small ischial spine on the first. Mastigobranchia present on second and third pereopods, absent on first.

A small median tubercle on second abdominal segment, dorsal carina beginning at anterior $1/4$ of third segment; no postero-median tooth at end of carina on fourth and fifth segments; dorsal carina on sixth segment ending in a posteromedian tooth. Telson shorter than inner uropods and slightly longer than the abdominal segment, with 3 pairs of movable spines, the sub-apical pair larger than the 2 preceding pairs; shallow dorso-median groove of telson widens out in posterior $1/3$; tip ends in a sharp spine.

Petasma anchor shaped (Text-fig. 2, A·B), wing-like distolateral projections curved ventrally, with well tapered tip; posterior margin of wings horizontal or slightly curving backwards. Appendix masculina, as wide as long, inner and distal edges fringed with minute setae.

Thelycum is shown in Text-fig. 2, C. Anterior thelycal plate forms a shallow bowl much deeper than the condition seen in *Trachypenaeus curvirostris*. The bluntly pointed anterior margin is recurved posteriorly in the largest female. The posterior plate wider than long, with a pronounced median notch on the anterior border, which exposes the entrance to the seminal receptacles; a transverse band of hairlike setae present on anterior border of the posterior plate. Coxae of the fourth and fifth pereopods fringed with setae.

Colour in life: Antennal flagella milky white or sometimes pinkish white. Narrow transverse light brownish bands on posterior margin of first five abdominal segments. Telson and uropods red, bordered with white on the uropods. General body colour pale reddish brown.

Discussion

The present species stands out from all the species of *Trachypenaeus* described so far in the absence of mastigobranchia on the first pair of pereopods, and the presence of mastigobranchia on the second and the presence of mastigobranchia on the second and third pereopods. But it closely resembles *Trachypenaeus curvirostris* (STIMPSON), *Trachypenaeus asper* ALCOCK, and *Trachypenaeus fulvus* DALL in the

general shape of the thelycum and petasma.

Fortunately, along with the new species, *T. fulvus* (long-legged variety of RACEK and DALL, 1965) and *T. asper* ALCOCK, occurred in the same haul and provided an opportunity to compare these three species caught from the same trawling ground. In spite of the close similarity of the secondary sexual characters of these three species, they could be readily distinguished from each other on the basis of their colour pattern in the fresh condition. *T. fulvus* has reddish brown antennal flagella and reddish brown uropods edged with yellow. *T. villaluzi* has white antennal flagella and bright red uropods edged with white and *T. asper* has white antennal flagella and a characteristic reddish brown saddle on the second abdominal segment, the uropods being very similar to that of *T. villaluzi* in colouration. To bring out the differences in the thelycum and petasma of these three species they are compared in the following table.

Characters	<i>T. villaluzi</i>	<i>T. asper</i>	<i>T. fulvus</i>
1. Stem of petasma	lateral margins diverging posteriorly	lateral margins diverging posteriorly	lateral margins almost parallel.
2. Distolateral projection of petasma	tip tapering, posterior margin horizontal or slightly curved posteriorly.	tip less tapering, posterior margin curved anteriorly especially in dorsal view.	massive, with posterior margin strongly convex.
3. Anterior thelycal plate	deep, bowl-like, no tubercles on surface.	almost flat and triangular, very few tubercles.	flat and semicircular covered with small tubercles.
4. Posterior thelycal plate	with short hairy setae along entire anterior margin.	anterior margin glabrous but hairy setae present in two lateral patches separated by a glabrous area in the middle.	entirely glabrous.
5. Posterior face of Coxae of fourth and fifth pereopods.	fringed with long setae.	fringed with long setae.	setae absent.

In this connection it may be pertinent to point out that *Trachypena asper* ALCOCK 1906, should be treated as a valid species and should not be clubbed with *Trachypena curvirostris* (STIMPSON), because of the presence of clear cut morphological differences which are set forth in the following table.

	<i>T. asper</i> (present collections)	<i>T. curvirostris</i> (as per Dall 1957)
Rostrum	Straight and ascending, even in large females; usually 9-10 rostral teeth+epigastric.	Strongly curved upwards in large females; usually 6-7 rostral teeth+epigastric.
Anterior thelycal plate	Almost flat.	With shallow depression.
Distolateral projection of petasma.	Tip less tapering, posterior margin slightly convex.	Tip more tapering, posterior margin almost horizontal, slight upward curvature seen in dorsal view.
Colouration.	Red saddle present on second abdominal segment; rostrum white tipped.	No red saddle on second abdominal segment; body pink to reddish brown.

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要 約

1978年12月26日夜, Tigbauan (Panay 島, フィリピン) 沖, 水深約 7 m の泥質地でトロール漁を行った際, 他のクルマエビ類 (Decapoda, Penaeidea) に混じって多くのサルエビ属 (*Trachypenaeus*) のエビが採集された。そして, 同時に漁獲された *T. asper* および *T. fulvus* に混じって, 一見それらと酷似するが精査すると, いくにかの点で相異なる76個体 (雄28, 雌48) が発見された。その特徴は以下のとおりである。

生時または新鮮時, antennal flagellum は白または桃白色, 第1~5腹節の後縁部に狭い淡赤色の横縞があり, 尾節と尾肢は赤色, 尾肢は白く縁どられている。体全体の印象は淡赤褐色である。第2, 3歩脚に mastigobranchia があり, 第1歩脚ではこれを欠く。Petasma (雄の外部生殖器) の disto-lateral projection の下縁は凹型であり, thelycum (雌の外部生殖器) の前板は深くへこんでいる。以上を総合した特徴は既存の種には見られず, よってこのエビを新種と認めた。新種はフィリピンにおけるエビ類研究の先駆者 Domiciano K. VILLALUZ 氏

(東南アジア漁業開発センター養殖部局の前部局長) の名前に因んで *Trachypenaeus villaluzi* と命名され, 同部局およびインド中央海洋水産研究所に保管された。

また, 他の3近縁種 (*T. asper*, *T. curvirostris*, *T. fulvus*) との相異関係も論じ, 更に *T. asper* は *T. curvirostris* と独立の種であることを理由づけた。